SFWMD Southern Everglades Nutrient Source Control Program Update

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17th Annual Public Meeting on the Long-Term Plan for Achieving Water Quality Goals for the Everglades Protection Area Tributary Basins
February 24, 2020
Basins Tributary to the Everglades Protection Area

Source Controls
Stormwater management
Stormwater Projects Sub-Regional and Regional
Agricultural BMPs

STA Inflow structure
Ecosystem Restoration
Everglades National Park

Southern Everglades
EPA Boundary
ECP Basin
Non-ECP Basin

C-51 West Basin
North Springs Improvement District Basin
C-11 West Basin
C-111 Basin
Feeder Canal Basin
L-28 Basin

Gulf of Mexico
Florida Bay
Biscayne Bay
The Long-Term Plan recommends activities designed to: “Maintain and improve upon the contribution of source controls to overall water quality improvement goals.”

Specifically:

- **Identify** discharges that are candidates for implementation of **cost-effective** source controls
- Characterize management practices on lands or processes tributary to those discharges
- Implement these source controls **in concert with** landowners or municipalities
Contents

- EAA and C-139 Basins
  - Regulatory activities
  - Research and demonstration projects
  - Sub-regional source control projects

- Other Tributary Basins
  - Regulatory and cooperative activities
  - Project integration
<table>
<thead>
<tr>
<th>Basin</th>
<th>Receiving Body</th>
<th>WY2019 TP Load (metric tons)</th>
<th>WY2019 TP FWMC (μg/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Everglades Agricultural Area (EAA)</td>
<td>STAs and Lake Okeechobee</td>
<td>136</td>
<td>119</td>
</tr>
<tr>
<td>C-139</td>
<td>STA 5/6 and EAA</td>
<td>30</td>
<td>153</td>
</tr>
<tr>
<td>C-51 West and ACME</td>
<td>STA-1E and C-51 East Basin</td>
<td>15</td>
<td>227</td>
</tr>
<tr>
<td>L-28</td>
<td>Water Conservation Area (WCA) 3A</td>
<td>8</td>
<td>64</td>
</tr>
<tr>
<td>C-11 West</td>
<td>WCA-3A</td>
<td>5</td>
<td>18</td>
</tr>
<tr>
<td>Feeder Canal</td>
<td>WCA-3A</td>
<td>2</td>
<td>53</td>
</tr>
<tr>
<td>C-111</td>
<td>Everglades National Park</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>North Springs Improvement District (NSID)</td>
<td>WCA-2A</td>
<td>0.03 mt (30 kg)</td>
<td>29</td>
</tr>
<tr>
<td>North New River (NNR)</td>
<td>Coastal Broward County</td>
<td>-</td>
<td>-</td>
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<tr>
<td>Boynton Farms</td>
<td>Lake Worth Drainage District</td>
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# EAA and C-139 Basin Source Control Programs

## Chapter 40E-63

<table>
<thead>
<tr>
<th>Permit-level compliance</th>
<th>EAA</th>
<th>C-139 Basin</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>• Comprehensive BMPs</td>
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<tr>
<td></td>
<td>• Permittee water quality monitoring</td>
<td>• Sub-basin water quality monitoring</td>
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<tr>
<td></td>
<td>• Post-permit compliance activities</td>
<td>• Post-permit compliance activities</td>
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</table>

## Basin-level water quality compliance

<table>
<thead>
<tr>
<th>EAA</th>
<th>C-139 Basin</th>
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<tbody>
<tr>
<td>Reduce TP Loads by 25% in comparison to pre-BMP period levels</td>
<td>Maintain TP Loads below pre-BMP period levels</td>
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</tbody>
</table>

## Research and Demonstration

<table>
<thead>
<tr>
<th>EAA Everglades Protection District (EAAEPD) Research Master Permit</th>
<th>Demonstration projects in partnership with landowners</th>
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## Supplementary Projects

<table>
<thead>
<tr>
<th>Restoration Strategies EAA Eastern Flow path source control projects</th>
<th>Upstream monitoring initiatives</th>
</tr>
</thead>
</table>
EAA Basin-Level Compliance 25% Reduction in TP Load

Baseline Period (WY1980-1988)
- Rainfall Adjusted Predicted Load: 243 mt
- Average Annual Concentration: 173 μg/L

WY2019 Runoff
- TP Load Reduction: 44%
- Measured TP Load: 136 mt
- FWM TP Conc.: 119 μg/L

25% TP Load Reduction Requirement (Target)

First Compliance Year

Pre-BMP Implementation
Partial BMP Implementation
Full BMP Implementation

Annual % TP Load Reduction
5-year TP Load Reduction
The EFA requires a comprehensive program of research, testing and implementation of BMPs.

A 5-year Master Research Permit is issued if the scope is approved by the SFWMD

- Qualified experts
- Identify appropriate BMPs
- BMPs field-tested in representative sites
- Soil, crops, other factors affecting BMP design and effectiveness
- Outreach and Training

Photos:
1. Soil Testing Research at UF-IFAS Belle Glade
2. Controlled application
3. Aquatic vegetation and sediments research at UF-IFAS
4. Discharge pump diagram at UF-IFAS
Proposed BMP Research Scope

- Phosphorus concentration in drainage water is impacted by the chemistry and properties of organic soils and land management. Phosphorus in drainage water is higher with:
  - High TP and available soil test P due to prior agricultural use;
  - Deeper soils; and
  - Higher organic matter content and lower inorganic mineral content (carbonates, Fe, and Al oxides)

- Lessons learned from low TP farms to other farms with similar soil properties, crop production, and drainage systems.
Restoration Strategies Source Controls

- Build on the SFWMD regulatory BMP program
- Projects…
  - Strategic on-site locations or sub-regional source control projects in series with on-site BMPs
  - Focus on areas and projects with the greatest potential to improve water quality
  - Designed to increase retention or detention of TP above what is currently required
- Evaluating feasibility of more flexible water management approaches in the Beach Water Control District
C-139 Basin Level Compliance

TP Load below historic levels

Increasing Levels of BMP Implementation

Baseline Period (WY1980-1988)
- TP FWMC*: 235 µg/L
- Average Annual TP Load: 38 t

Comprehensive BMP Plan Implementation

WY2019
- TP FWMC*: 153 µg/L
- Measured Runoff TP Load: 30 t
- Target TP Load: 47 t
- Limit TP Load: 118 t
Environmental Resource Permits to Village of Wellington and Pine Tree WCD (PTWCD)
- BMPs and livestock waste storage and disposal
- Water quality monitoring (U markers) and reporting

2019 Expanded monitoring network (U markers)
- Environmental Resource Permit to Southern Gardens Groves including Best Management Practices
- Other projects: C-139 Flow Equalization Basin and Sam Jones Abiaki Prairie Restoration
- CERP Big Cypress/L-28 Interceptor Modification (WERP) – Planning
Environmental Resource Permits to WCDs including optimized detention and water quality reporting

Ongoing CERP Project: Broward Co Preserve Area
Feeder Canal Basin

- CERP Big Cypress/L-28 Interceptor Modification (WERP) – Planning
- North Feeder: Required BMPs, water quality monitoring and TP goals under Environmental Resource Permits. Voluntary FAV tilling projects
- West Feeder: Landowners can enroll in the FDACS BMP program.
Environmental Resource Permits to NSID including limited discharge and water quality reporting

CERP Project: Hillsboro 1 Impoundment (on-hold)
### Summary

**Regulatory programs**
- Verification of implementation
- Water quality monitoring to ensure effectiveness

**Cooperative agreements**
- BMP research and demonstration projects
- Data collection and supplemental evaluations

**Program improvement**
- Restoration Strategies source control projects
- CERP and others

**Synergize benefits with regional and sub-regional projects**
Additional Information

Everglades and Estuaries Protection Bureau

www.sfwmd.gov/sourcecontrols

www.sfwmd.gov/sfer
Questions

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